

**BELLSOUTH**

**W. W. (Whit) Jordan**  
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**EX PARTE OR LATE FILED**

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Ex Parte

November 23, 1998

Ms. Magalie Roman Salas  
The Portals  
445 Twelfth Street, S.W.  
Washington, D.C. 20554

**RECEIVED**

**NOV 23 1998**

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OFFICE OF THE SECRETARY

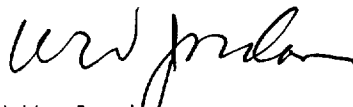
RE: CC Docket No. 98-147 /

Dear Ms. Salas:

On November 18, 1998, Keith Milner, Gary Tenneson and the undersigned, all representing BellSouth, met with Douglas Sicker from the Office of Engineering and Technology, and Daniel Shiman and Jonathan Askin of the Common Carrier Bureau. The meeting was in connection with the above referenced proceeding. At the meeting BellSouth discussed spectrum management and collocation and unbundling issues. The attached material was presented by BellSouth during the meeting.

Please call me if you have any questions.

Yours truly



W.W. Jordan  
Vice President - Federal Regulatory

Attachments

cc: Douglas Sicker  
Daniel Shiman  
Jonathan Askin

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LIST ABOVE

# UNBUNDLING and COLLOCATION ISSUES

November 18, 1998

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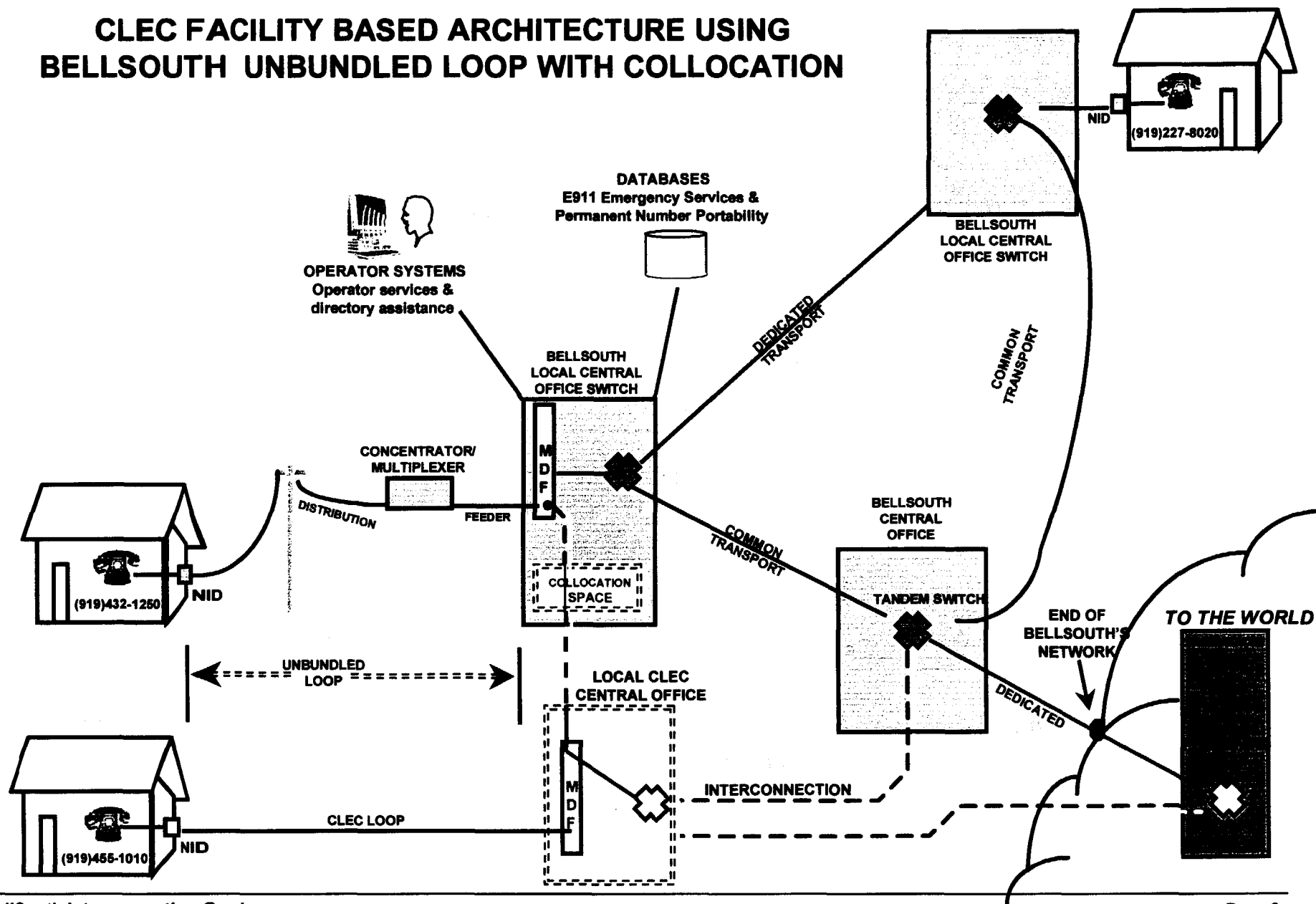
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# NETWORK UNBUNDLING



## CLEC FACILITY BASED ARCHITECTURE USING BELLSOUTH UNBUNDLED LOOP WITH COLLOCATION



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Collocation in remote terminals, garden terminals, feeder/distribution interfaces ("cross-boxes") and controlled environment vaults (CEVs) is not technically feasible.

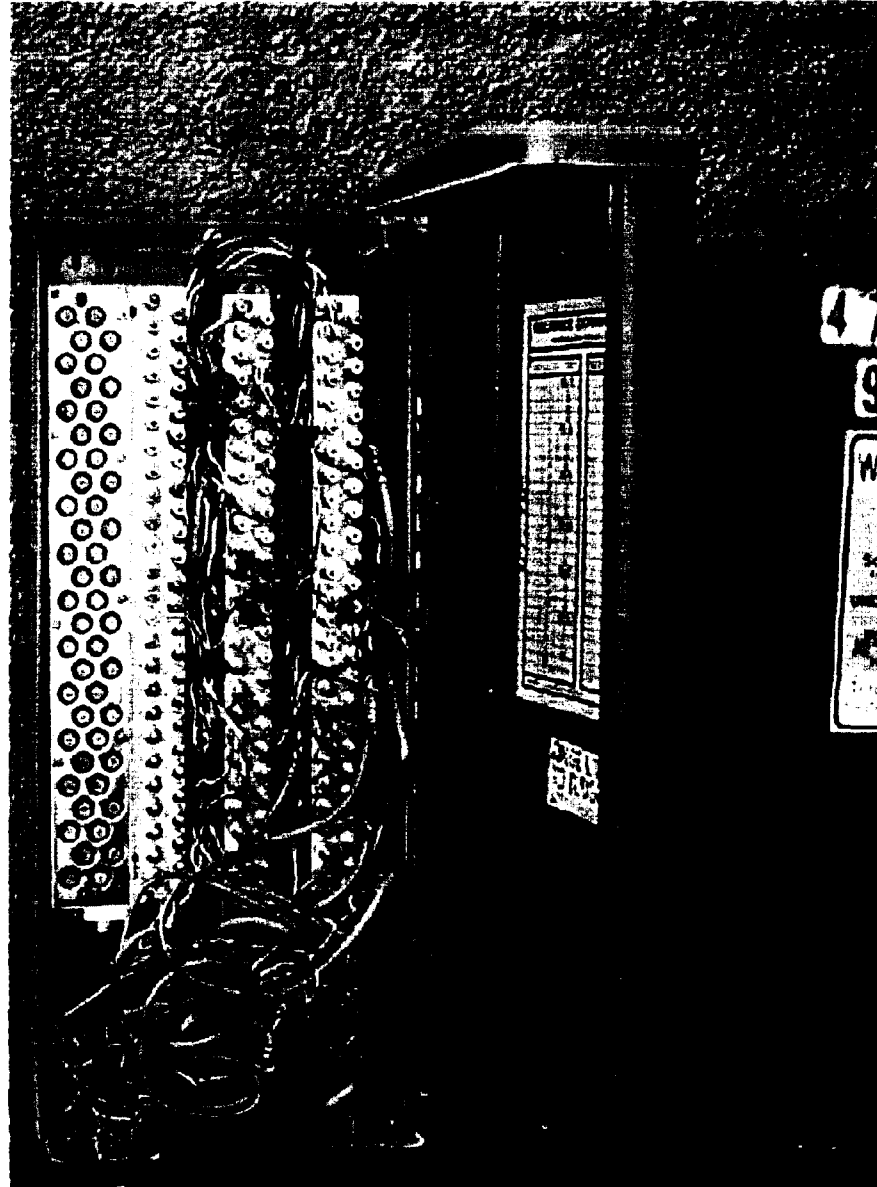
No separation of ILEC and CLEC equipment.

Physically small structures, not designed for multi-carrier access.

Network reliability and security problems.

BellSouth provides terminal-to-terminal arrangements for CLEC access to sub-loop elements such as loop distribution, loop concentrator/multiplexer and network terminating wire where required.

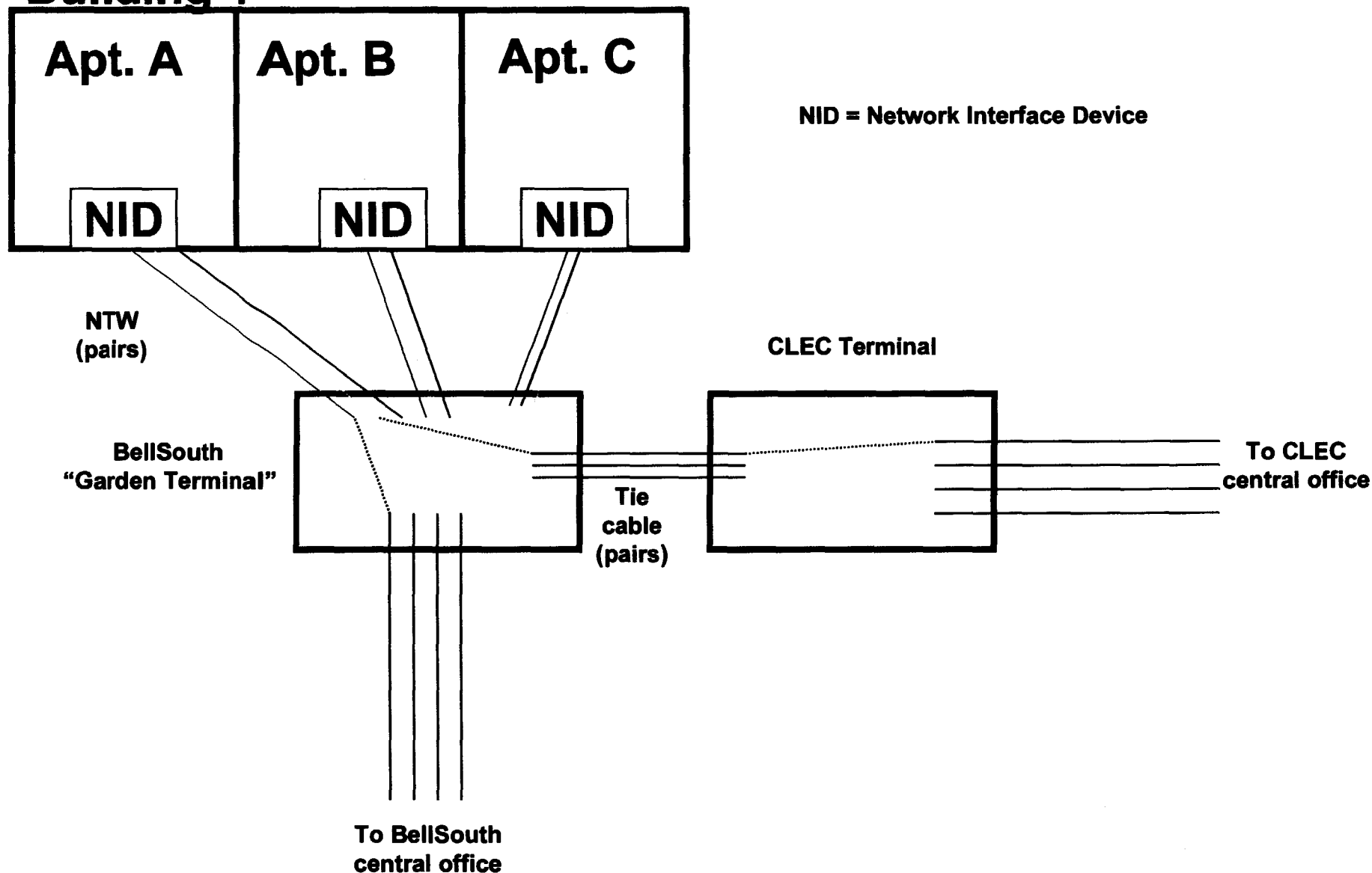
**“Garden terminal”  
Interior view**

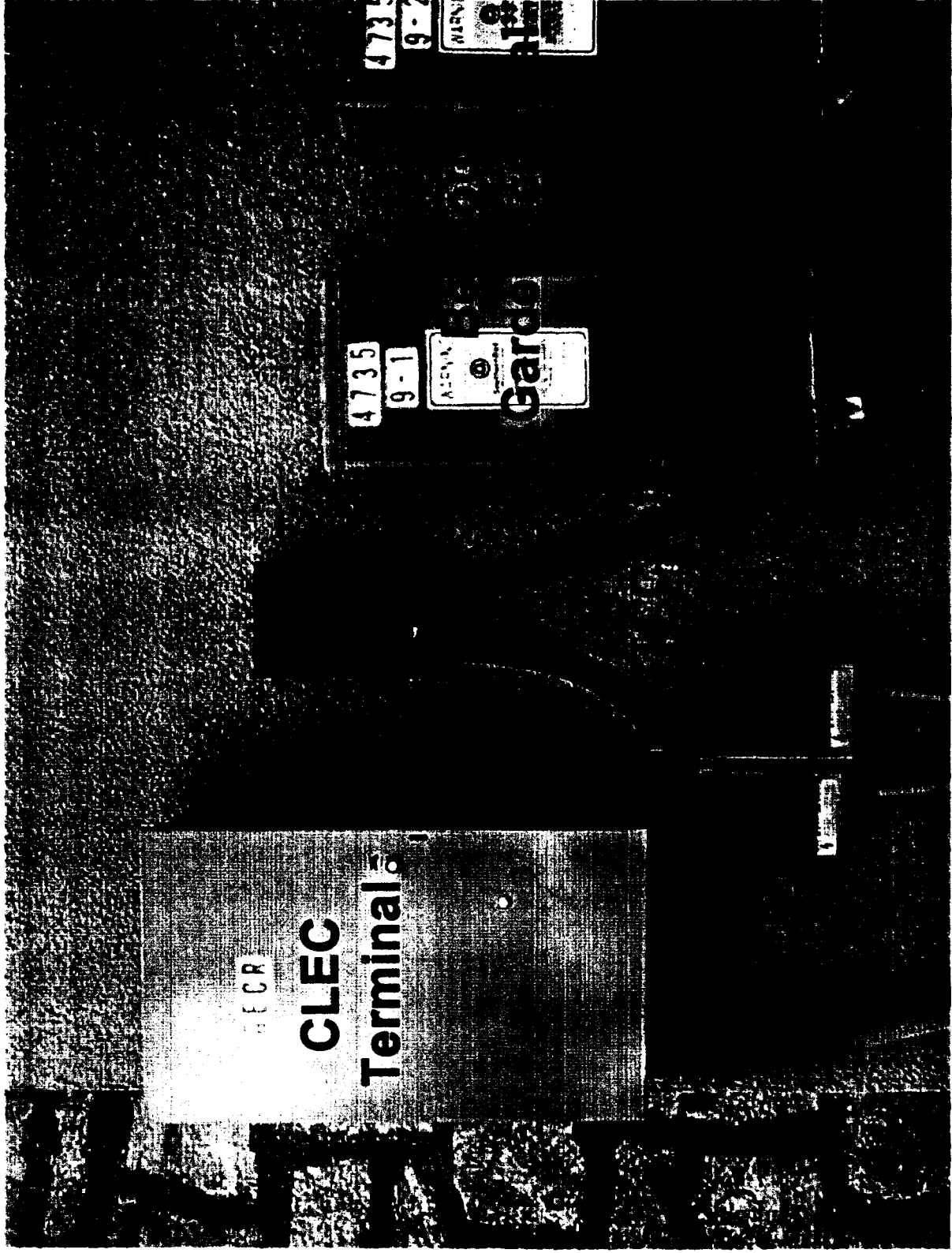


# Unbundling of Network Terminating Wire

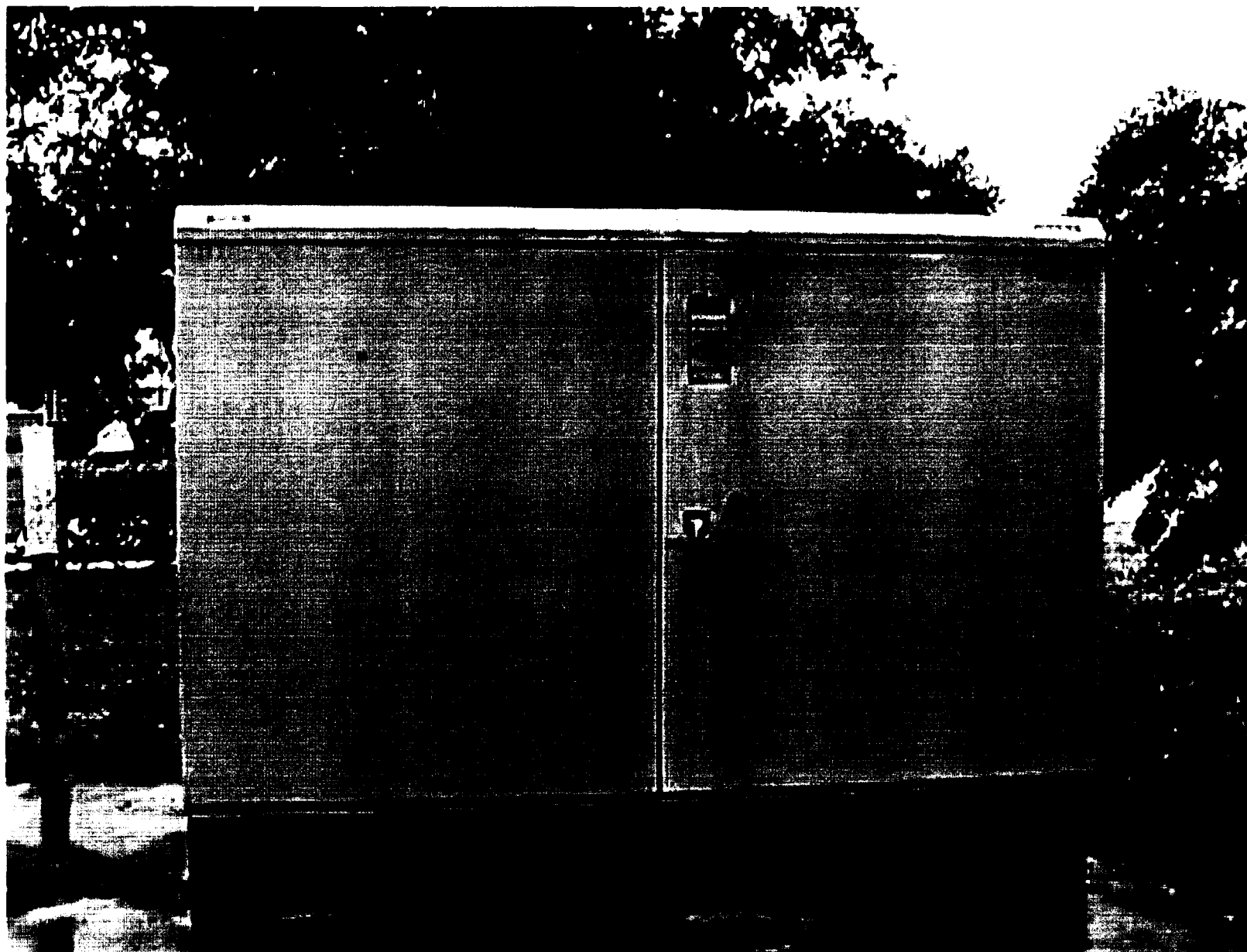


## Building 1



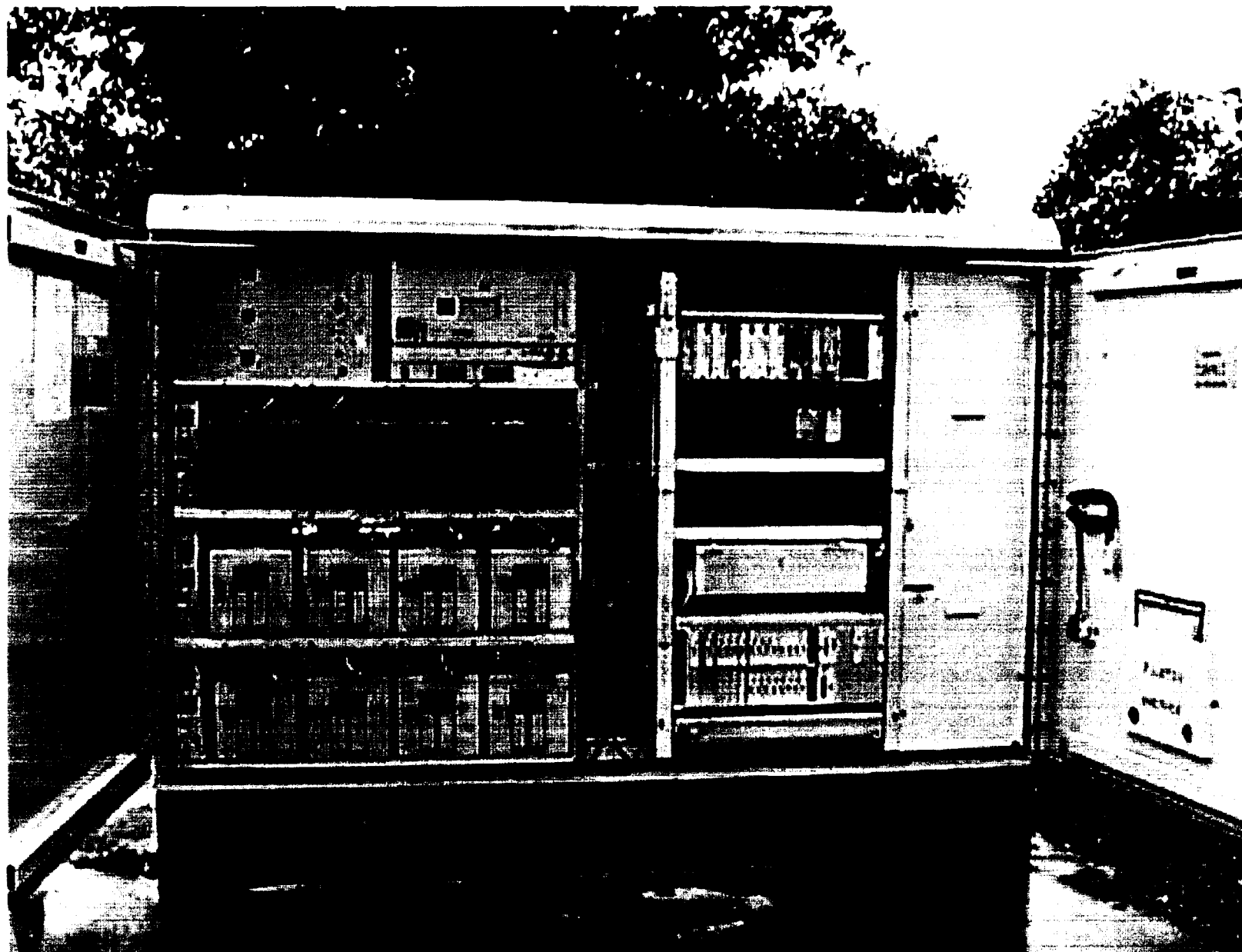


## External view of Remote Terminal



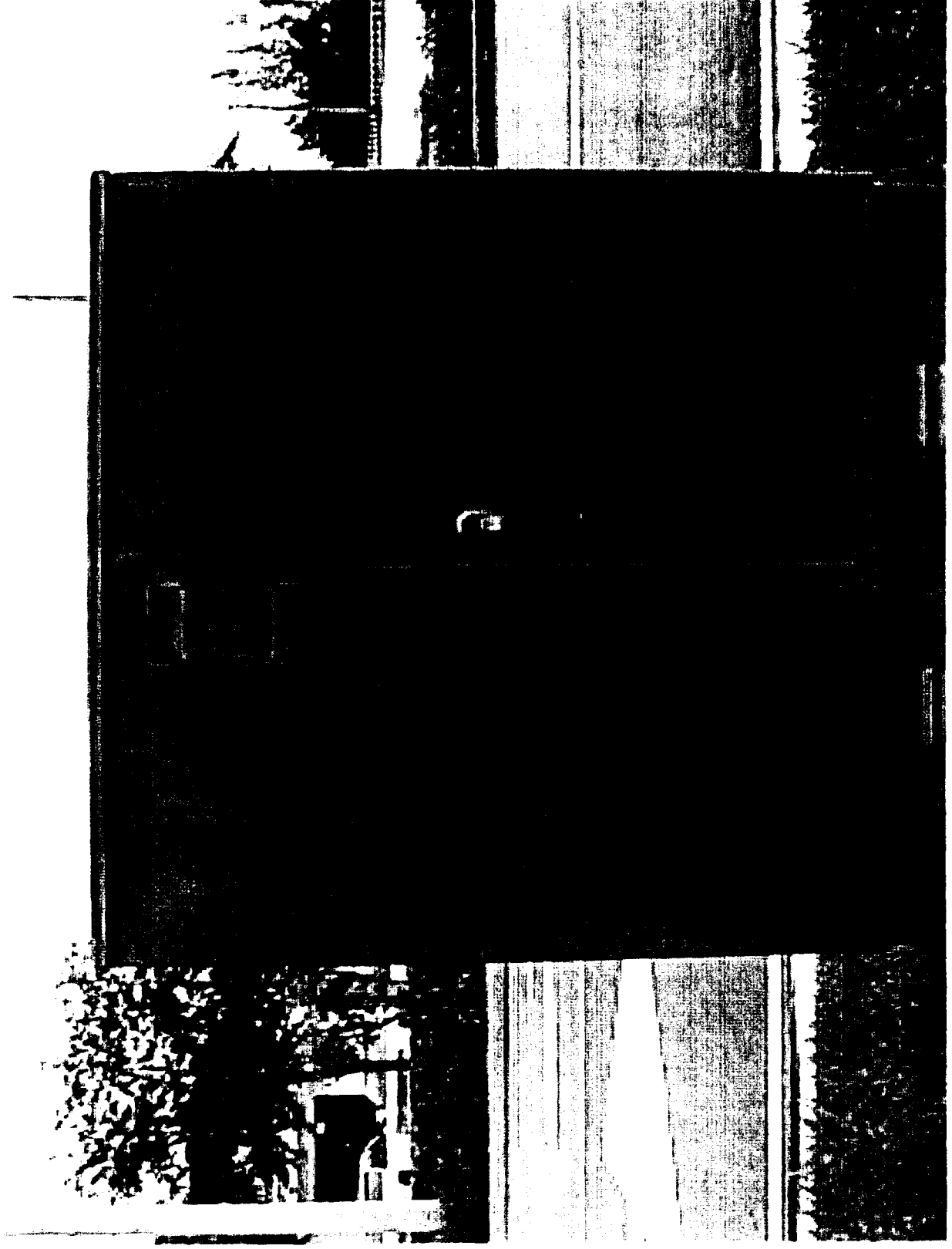


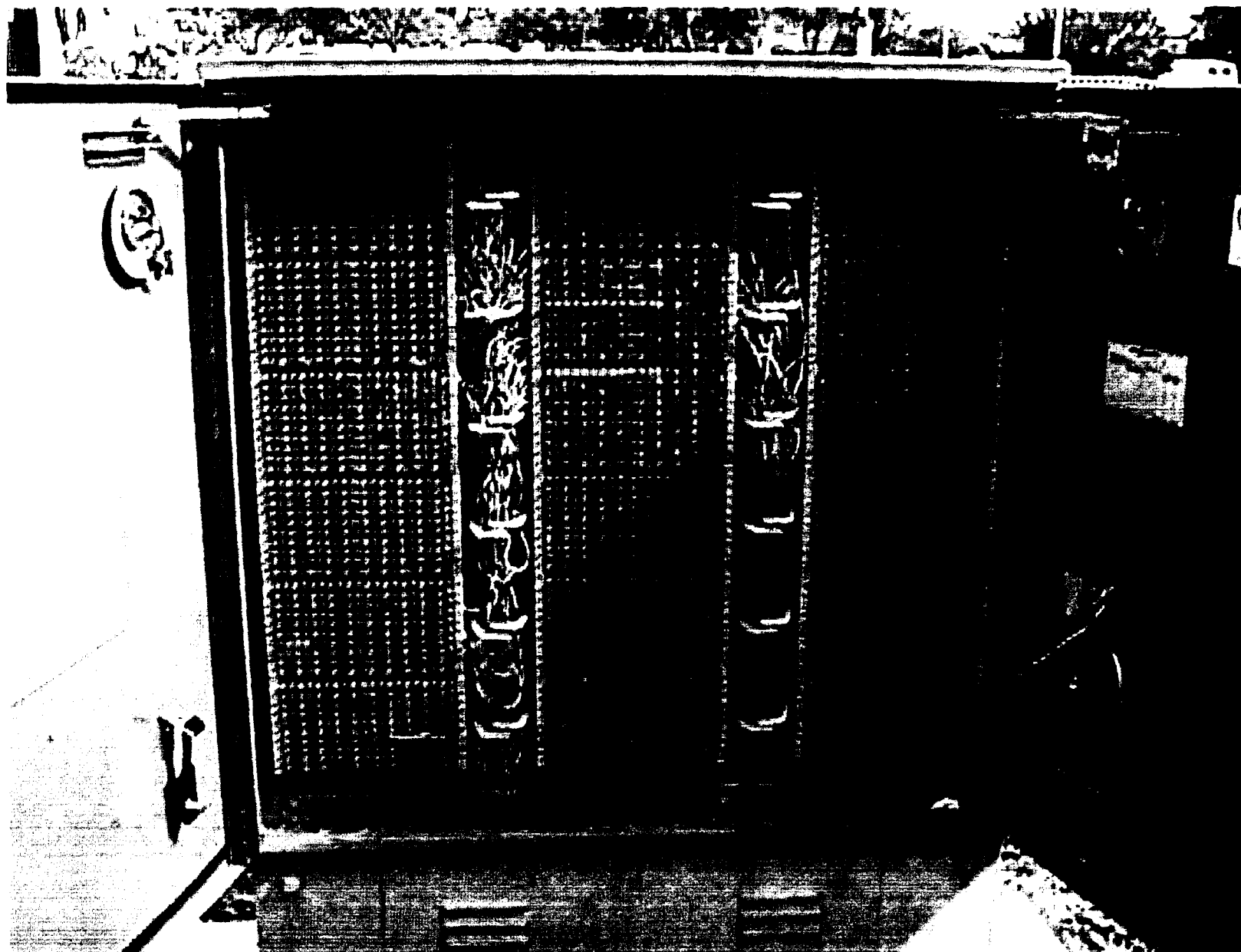
## Interior view of Remote Terminal



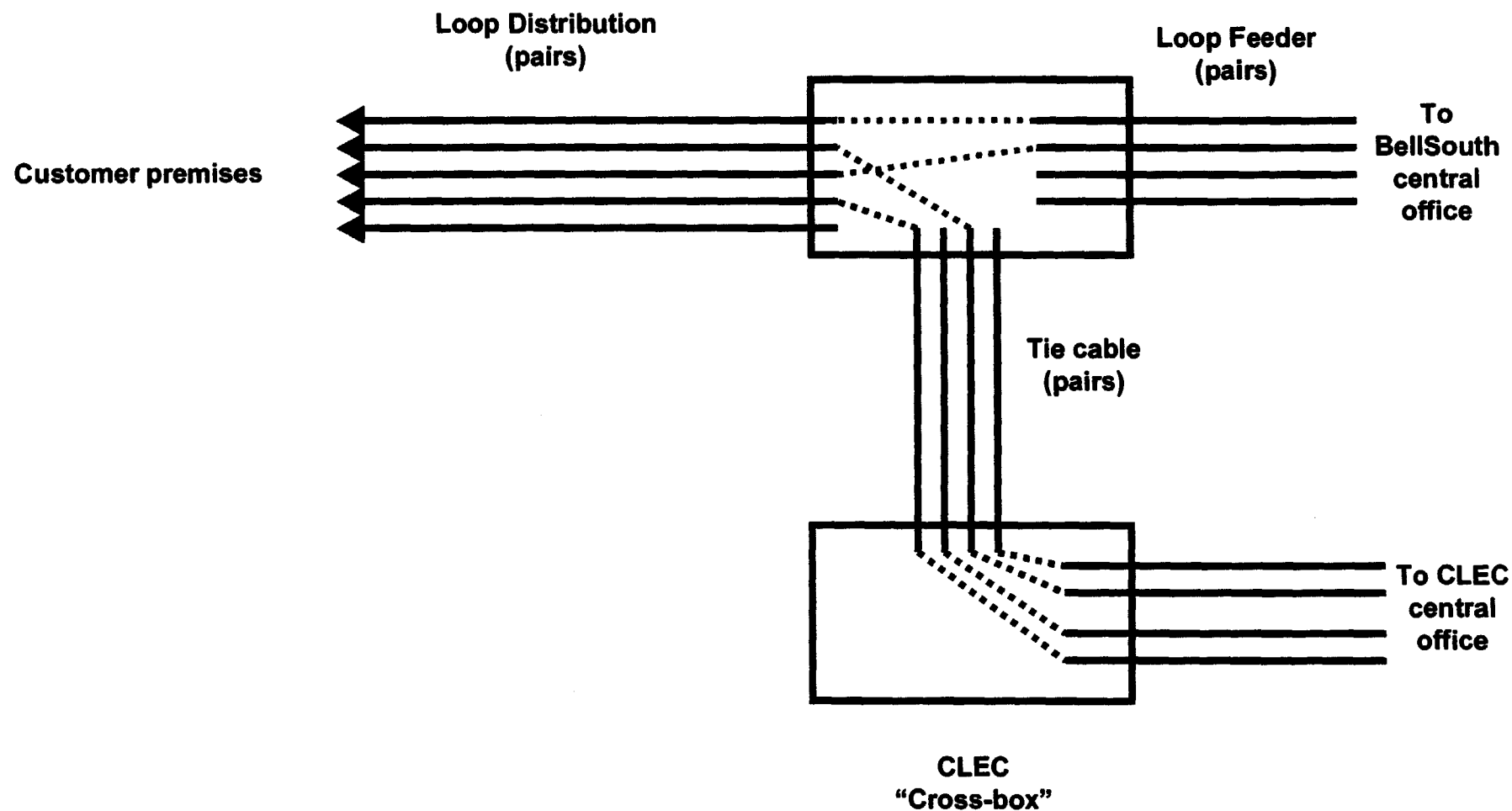
## Feeder Distribution Interface exterior view

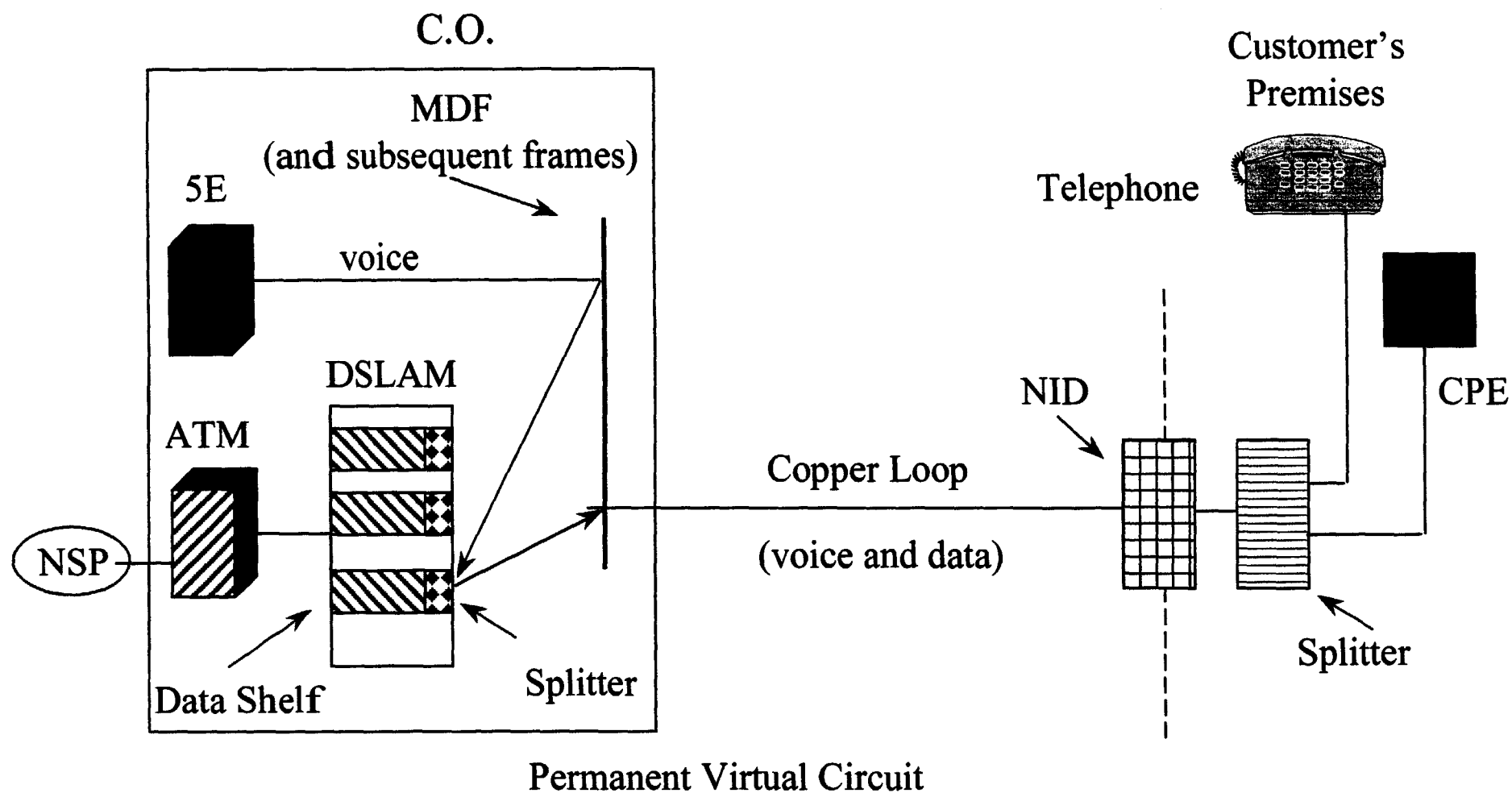
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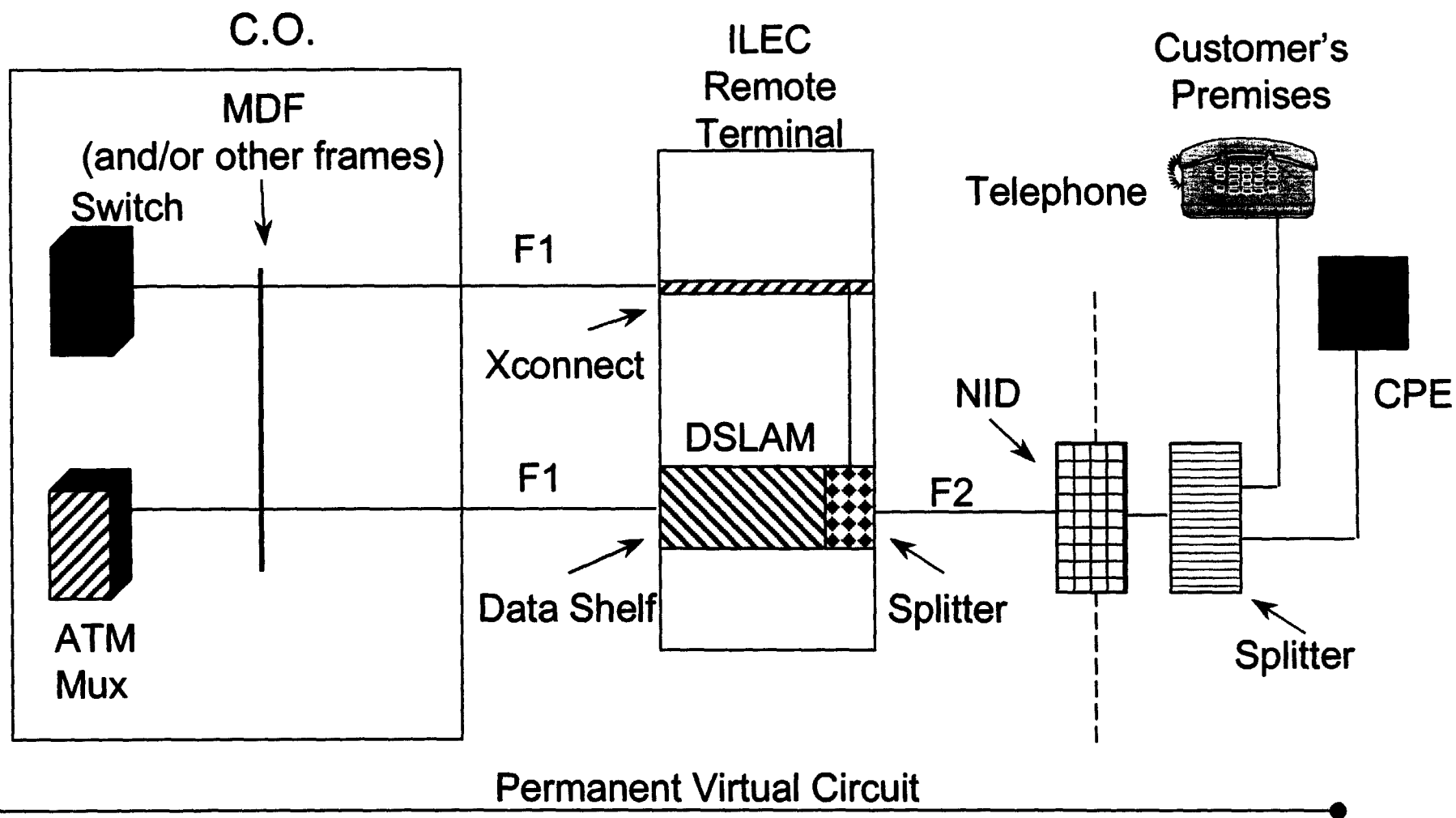




# Unbundling of Loop Distribution







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**BellSouth offers ADSL and HDSL capable loops via its Statement of Generally Available Terms and Conditions (SGAT).**

- The SGAT prices for ADSL and HDSL capable loops include costs to “qualify” a given loop.
- If a given loop is determined not to be ADSL or HDSL capable, the CLEC may request “conditioning” via the Special Assembly process.

**BellSouth offers physical collocation and virtual collocation as means by which CLECs can combine Unbundled Network Elements.**

**BellSouth's offer has provisions other RBOCs have not offered:**

- **Unenclosed physical collocation in a common collocation area with no minimum square footage requirement.**
- **Physical collocation of switching equipment.**



### **CLECs are concerned about network reliability and security issues arising from physical collocation.**

- None of the physical collocation arrangements completed as of September 30, 1998, were unenclosed.
- Of the physical collocation arrangements in progress as of September 30, 1998, only 16% will be unenclosed.
- Even in those few instances where CLECs request unenclosed physical collocation arrangements, the CLECs frequently inquire about lockable cabinets and other protective measures.

### **Building plans are submitted for:**

- Environmental compliance
- Building compliance
- Fire zoning compliance
- Landscaping compliance
- Mechanical, electrical and plumbing compliance

### **Permitting agencies have varying requirements. Examples include the following:**

- Municipalities in South Florida consider physical collocation arrangements as “multi-tenant space” and therefore subject to rules regarding fire-rated, floor-to-ceiling walls.
- Some municipalities allow high-voltage alarm systems while others do not.

**Municipal requirements and staffing are beyond the control of BellSouth. Permitting intervals, thus, should be excluded from collocation provisioning intervals.**

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# Spectrum Management

Presentation to FCC

November 18, 1998

# Spectrum Management

- Distinguish Spectrum Management from 'Spectrum Unbundling'
- Background of Spectrum Management
- Digital Subscriber Line (DSL) Standards
- Loop Qualification
- Issues Raised by Loop Qualification

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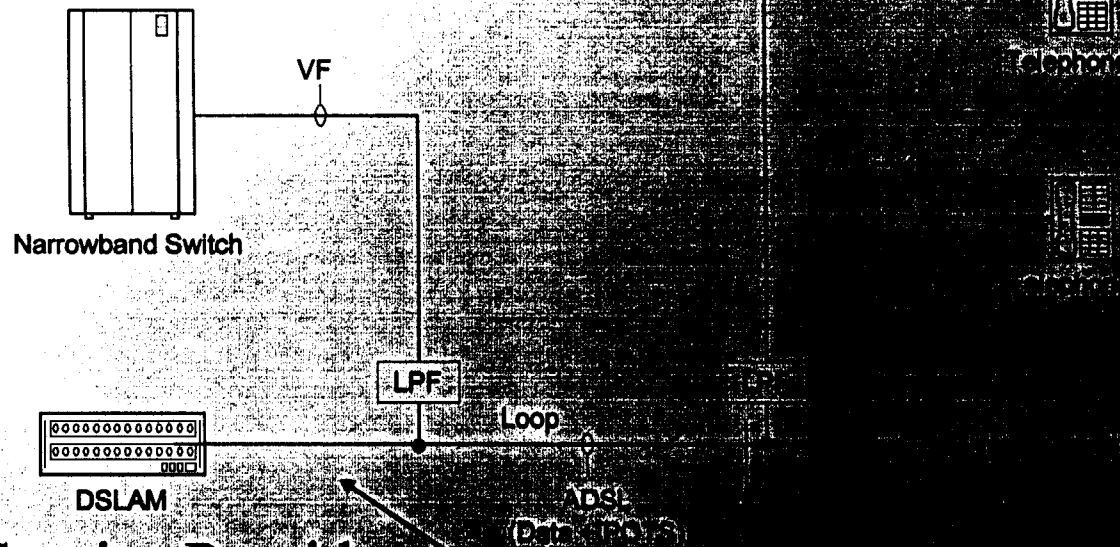
## Spectrum Management / 'Spectrum Unbundling'

- Spectrum Management is the planning and administration of services (or frequencies) on different pairs within a cable so as to minimize the interaction between them
- Spectrum Unbundling is the process by which service providers are made available

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# An Example of the Risks in 'Spectrum Unbundling'

Voice Service Provider



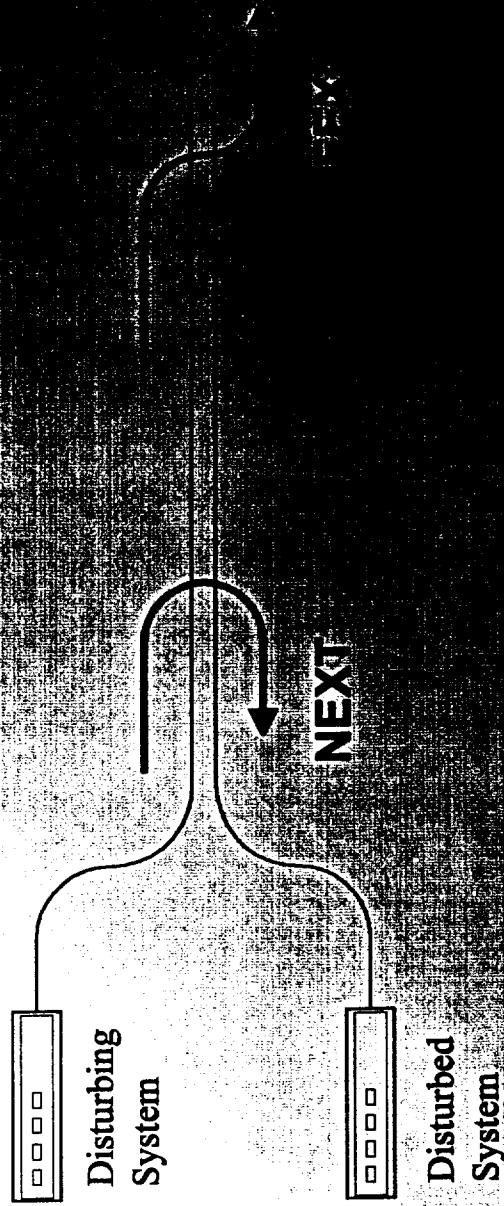
Data Service Provider

A short haul line  
affects the VSP

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# Spectrum Management

Controls the Amount of Noise Introduced via  
Crosstalk from Other Cable Pairs



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# Spectrum Management

Intended to Minimize the Degradation of  
'Protected' Services and Systems

- POTS
- T1
- DDS
- Basic Rate Access ISDN
- HDSL



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## DSL Standards

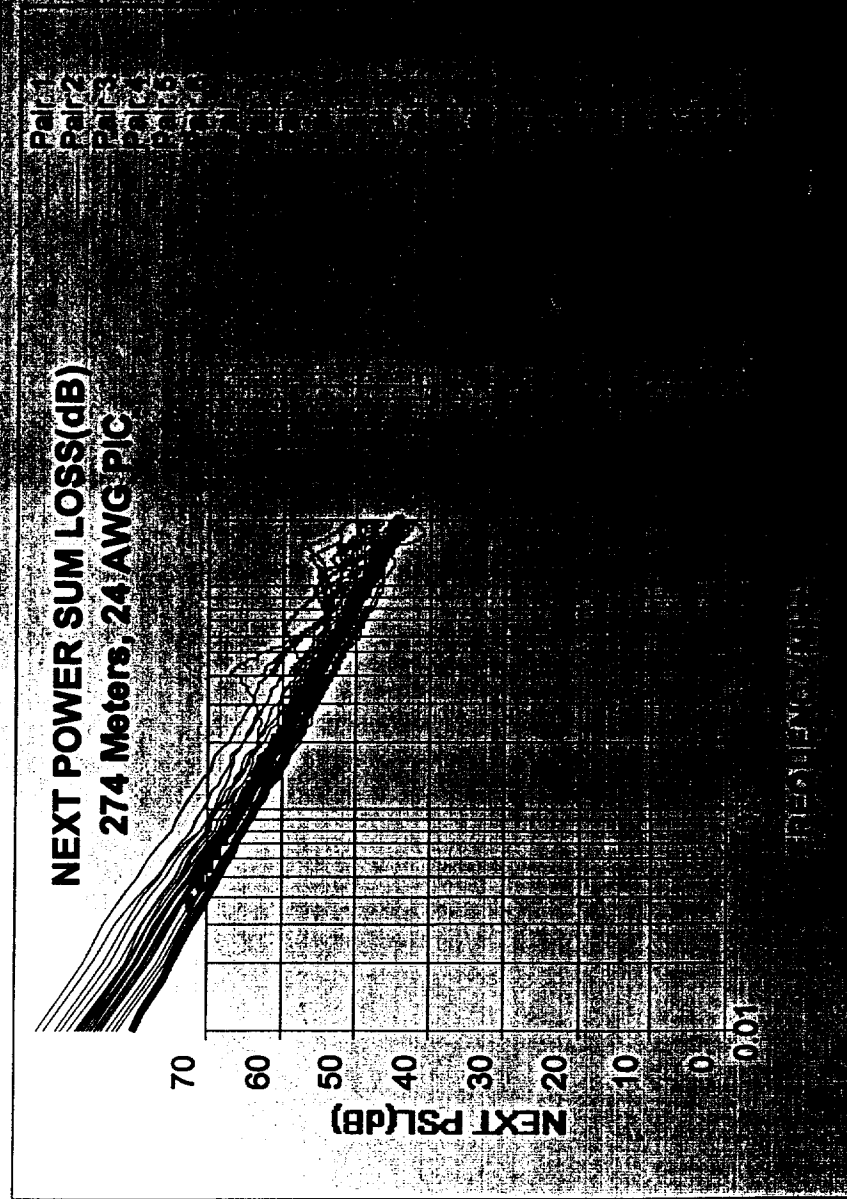
- Historically, primary industry group has been T1E1.4
  - Basic Rate Access ISDN
  - HDSL
  - ADSL
  - Single Pair HDSL
- G.lite has been declared standard and is building on work done by ITU

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# DSL Standards Crosstalk Model

- Crosstalk is random
  - Varies from pair to pair within a binder
  - Some variation with frequency
- Studies during development of BRATSDIN standard required design of test equipment and industry acceptance of test results

# DSL Standards Crosstalk



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# DSL Standards Crosstalk

- Very difficult to find a disturbing system
  - Extended service outage
  - Costly
  - Customer dissatisfaction
- Must be modeled conservatively, e.g., 10% probability that value exceeds fibre limit

# DSL Standards Principles

- Use nearly worst-case assumptions
  - 1% NEXT model
  - maximum number of disturbers
- Assume that the disturbed system is at its maximum designed loop length
- Require some minimum SNR margin
- Crosstalk controlled via Transmitted Power Spectral Density

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# DSL Standards Principles

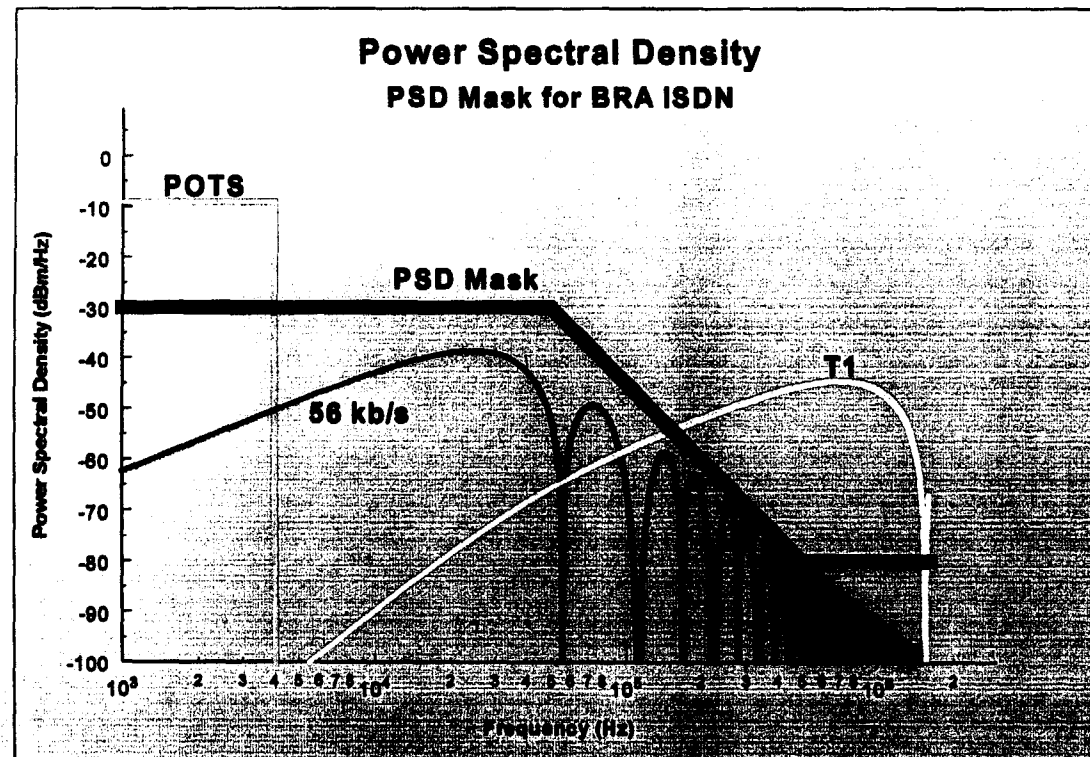
- Require operation over a suite of test loops
- Assume no removal of bridge traps
- Assume no 'special' treatment of service management
  - Service-specific bandwidth management
  - some cross-connection
  - Very costly to implement



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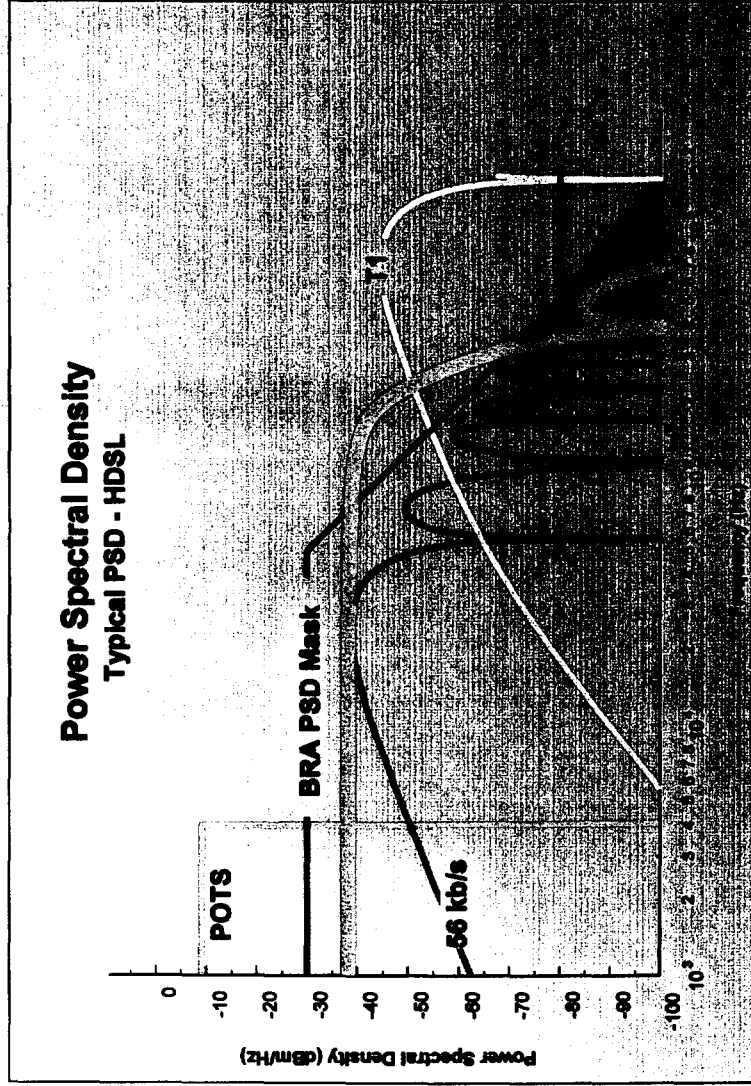
# DSL Standards

## PSD Mask for BRA ISDN



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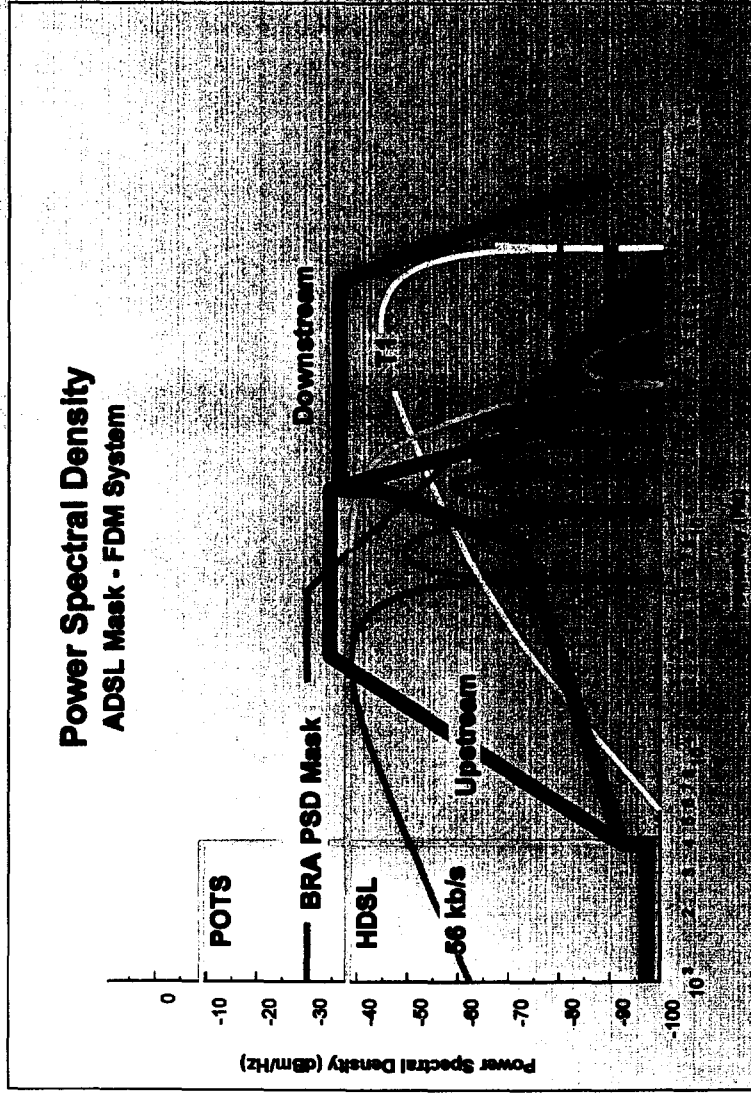
# DSL Standards Typical PSD for HDSL





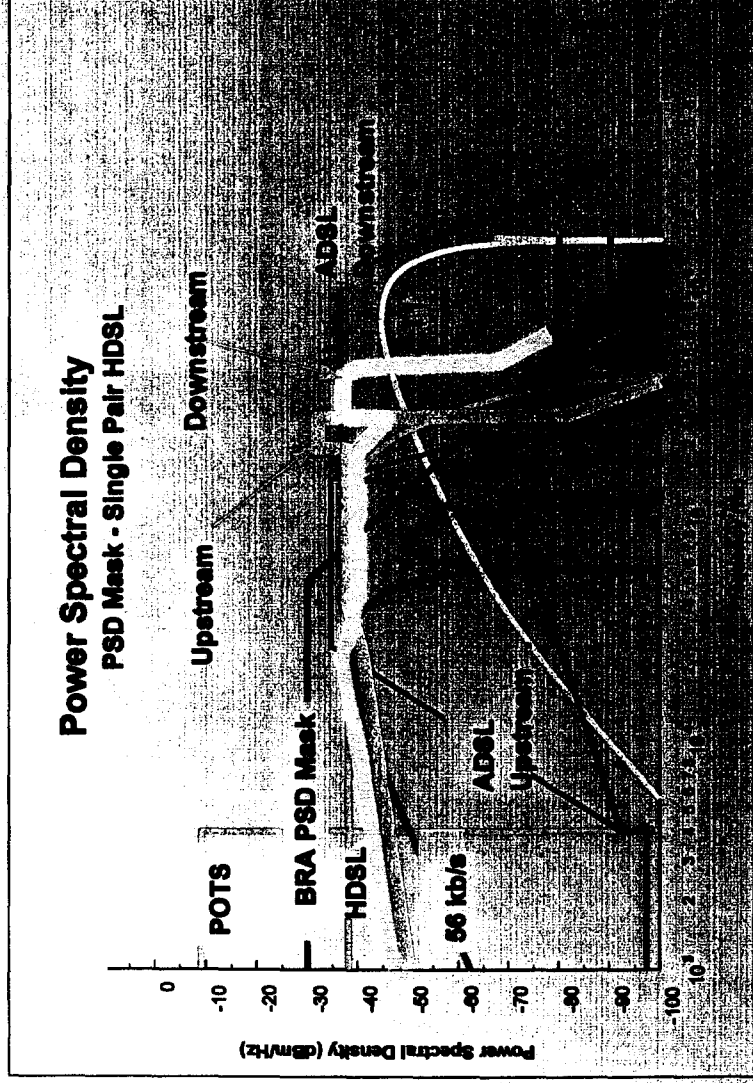
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# DSL Standards PSD Mask for FDM ADSL



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# DSL Standards PSD Masks for Single Pair HDSL



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# DSL Standards

## Spectrum Management

- Legacy technologies
  - POTS
  - DDS (Baseband Digital  $\leq 64$  kb/s)
  - T1 (Baseband Digital 1.544 Mb/s)
- Fixed-rate DSL technologies
  - BRA ISDN (& DAMU)
  - HDSL (2-line and 3-line)
- Adaptive rate ADSL

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# DSL Standards Summary

- Spectrum Management has been fostered in a consensus-driven industry standards forum
- Uses nearly worst-case assumptions regarding deployment
- Accomplished via service provider DSL templates

## Loop Qualification

- Standards-based products results in minimal qualification
- Loop qualification for ADSL is simplified if fixed-rate DSL systems are deployed conservatively
  - HDSL - CSA range
  - BRA ISDN - 18 kft
  - T1 might be a problem

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## Loop Qualification

- Non-loaded resistance design loops are limited to 18 kf and 1300 Ohms
- Early indications are that FIDM A/DSP should work on 98-99% of such loops
  - Record errors may drive a loop down
  - Rate adapts down to 1000
  - Based on a 1000 Hz loop

## Loop Qualification

- Given this estimate of loop coverage, only limited data is needed to qualify a loop
  - loading
  - use of DLC
- Available electronically
- No other pertinent data needed, e.g. from a database, e.g. from a



## Issues Raised by Loop Unbundling

- Do CLEC's have incentive to meet standard PSD masks ?
  - Conservative, near-worst case assumptions sacrifice loop reach and data rates in order to minimize the impact on other services, for which they may not be compensated
  - Existing standards are voluntary
  - No compliance testing or enforcement



## Issues Raised by Loop Unbundling

- New arrangements/products with PSD that doesn't 'fit' any of the existing masks, e.g. 'backwards ADSL'
  - Introduction of new PSD mask requires exhaustive analysis and regulatory review
  - Probably not adequately addressed by ILEC and a few CLECs
  - Best addressed by a new regulatory Management Structure

## Issues Raised by Loop Unbundling

- Our loop qualification process balances the cost of obtaining loop information against its benefits, e.g., data rate performance guarantees at time of subscription
  - Uses data resident in existing CDS
  - CLEC's requiring more data are much higher (higher than BellSouth's)

## Summary

- Compliance with recognized PSD masks is necessary to protect existing users
- New standards could be very harmful if the masks are too liberal
  - higher costs
  - extended service overlap
- We encourage you to work with the group with the expertise